



LACO ASSOCIATES

ENGINEERS • GEOLOGISTS • ENVIRONMENTAL CONSULTANTS

21 W. 4th St. • PO Box 1023 • Eureka, CA 95502 • 707.443.6054

Disclaimer:

The recipient acknowledges that;

- (1) LACO ASSOCIATES (LACO) electronic files contained herein are provided as a professional courtesy only.
- (2) These electronic files do not constitute the professional work of LACO.
- (3) Only the final, wet stamped, signed, hard copy constitutes professional work product of LACO.
- (4) The recipient shall be responsible for their own virus protection and LACO shall not be liable for any possible subsequent damages.
- (5) The graphic scale should be used for all measurements on drawings transmitted in .pdf format as they do not necessarily reprint at scale.

By opening any electronic file, the recipient agrees to the above acknowledgements and to fully indemnify, defend and hold harmless LACO from and against all claims, liabilities, losses, damages, and costs, including but not limited to, attorney's fees arising out of or in any way connected with the use, modification, misrepresentation, misuse, or reuse by the recipient or other third parties of the computer media and data provided by LACO.

June 21, 2005

4329.02

Humboldt County Department of Health and Human Services
Division of Environmental Health
100 H Street, Suite 100
Eureka, California 95501

Attention: Mr. Mark Verhey, C.E.G.

Subject: Groundwater Monitoring Report; Second Quarter 2005
HPI Redwood Village Texaco, 723 South Fortuna Blvd., Fortuna, California
LOP No: 12551

Dear Mr. Verhey:

LACO ASSOCIATES (LACO) presents the results of groundwater monitoring for the second quarter of 2005 at the Redwood Village Texaco located in Fortuna, California. This report has been prepared for Humboldt Petroleum, Incorporated.

Please call (707) 443-5054 or e-mail if you have any questions or concerns.

Sincerely,
LACO ASSOCIATES

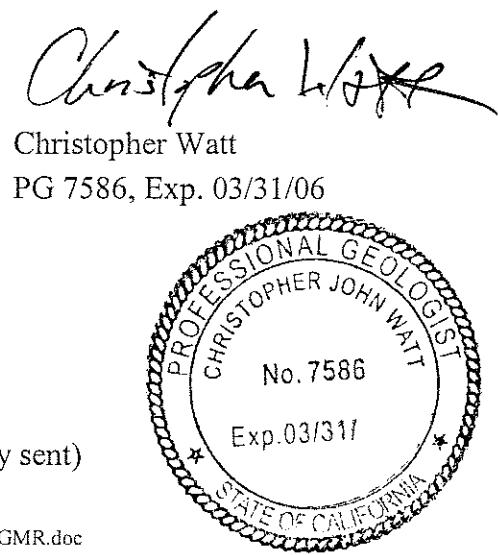
Amy M. Thomson
Amy Thomson
Staff Geologist

AMT:cs

Attachments

cc: Jim Seiler, Humboldt Petroleum, Inc. (electronically sent)

P:\4000\4329 HPI R-Village Texaco\Submittals\GMRS\2005\2nd Q '05\4329.02_2Q05_GMR.doc



GROUNDWATER MONITORING REPORT
SECOND QUARTER 2005

HPI Redwood Village Texaco; 723 South Fortuna Blvd., Fortuna, California
LOP No. 12553; LACO Project No. 4329.02

INTRODUCTION:

Field activities were conducted on May 23, 2005, in accordance with generally accepted practices at this or similar locations. Details of the quarterly sampling parameters are presented in Table A below. A location map and site plan is included as Figures 1 and 2, respectively. Field sampling reports are included as Attachment 1.

SITE CHRONOLOGY:

- 1984: Redwood Village was built on raw agriculture property.
- 1990: Humboldt Petroleum, Incorporated (HPI) purchased the subject property.
- 1996: Three 10,000 gallon gasoline underground storage tanks (USTs) were removed and replaced with two new, steel fiberglass-coated double-walled tanks and fiberglass piping. Approximately 710 tons of contaminated soil from the cavity and surrounding soil were excavated.
- 1998: Three monitoring wells were installed. The high concentrations of total petroleum hydrocarbons as gasoline (TPHg) in monitoring well MW-2 lead to further investigation.
- 1999: Four borings were installed. The field geologist observed two distinct aquifers separated by an aquitard.
- 2000: Five monitoring wells were installed and the previous monitoring wells (MW1 through MW3) were destroyed.
- 2001: Seventeen borings were installed to further delineate the plume.
- 2002: Monitoring wells MW9 through MW15 were installed.
- 2004: Sixteen borings were installed to monitor plume stability.

TABLE A Quarterly Sampling Parameters: May 23, 2005, Sampling Event

MONITORING WELL ID	SCREENED INTERVAL	DTW (feet)	PURGE METHOD	WATER QUALITY	ANALYTICALS	SAMPLING SCHEDULE
					ORGANICS	
MW4	3-10	5.38	DHP	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly
MW5	15-24.1	21.84	3/4" Bailer	Not Tested		
MW6	3-10	7.49	DHP	ORP, DO		
MW7	15-26.3	25.16	3/4" Bailer	Not Tested		
MW8	10-15	14.6	Attempted Bail	Not Tested		
MW9	5-10	4.99	DHP	ORP, DO		
MW10	5-10	9.42			Not Enough Water to Sample	
MW11	5-10	4.88	DHP	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly
MW12	28-30.9	25.39	3/4" Bailer	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly
MW13	5-10	4.84	DHP	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly
MW14	5-10	5.18	DHP	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly
MW15	5-10	5.42	DHP	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly
MW16	4-14	11.59	DHP	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly
MW17	4-14	12.11	DHP	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly
MW18	4-14	5.25	DHP	ORP, DO	TPHg, BTEX, MTBE, DIPE, ETBE, TAME, TBA	Quarterly

HYDRAULIC GRADIENT AND HYDROGEOLOGY

In previous monitoring events, the hydraulic gradients for both the shallow and deep water-bearing units have been typically calculated using the three-point method and hydraulic head elevations. Historic hydraulic head data are included in Table 1 and historic hydraulic gradients are presented in Table 2. Hydraulic heads for monitoring wells screened in the shallow and deep aquifers are provided in Figures 3 and 4, respectively.

The hydraulic gradient in the shallow aquifer was calculated using the three-point method in the area defined by monitoring wells MW4, MW10, and MW13. These monitoring wells were selected because they are located along the site perimeter and thus represent the hydraulic gradient over the site. The hydraulic gradient for the shallow wells for this sampling event was estimated at 4.20 percent in a N42°E direction (Figure 3). The hydraulic gradient in the deep aquifer was calculated using the three-point method in the area defined by monitoring wells MW5, MW7, and MW12. The hydraulic gradient for the deep wells for this sampling event was 4.30 percent in the S45°W direction (Figure 4). The calculated gradient for the shallow and deep aquifers is relatively consistent with previous measuring events (Table 2).

An examination of the hydraulic heads, monitoring well screen intervals, and hydro-stratigraphic conditions of the site suggests that vertical gradients exist in the area defined by an inferred east-west transect that includes monitoring wells MW4, MW18, MW15, MW11, and MW10. Table B, included below, contains screen interval information for monitoring wells MW4, MW18, MW15, MW11, and MW10.

Table B: Screen Intervals of Select Monitoring Wells

Screen Interval (feet, bgs)	Monitoring Well				
	MW4	MW18	MW15	MW11	MW10
	3-10	4-14	5-10	5-10	5-10

Evidence of vertical gradients in this area of the site include the more than 5-foot difference in hydraulic head between monitoring wells MW11 and MW10, which are separated by a linear difference of approximately 47 feet. The vertical gradients appear to be driven by differences in

lithology in which clayey silt to silty clay lenses may contribute to perching conditions in the area defined by these monitoring wells. In particular, the screen interval of monitoring well MW15 appears to intersect a clayey silt to silty clay lens, which may be acting as a perching layer in the immediate vicinity. The elevated hydraulic head elevations of monitoring wells MW4, MW11, MW18, and MW15 may be caused by recharge during the rainy season or the proximity of underground utility corridors.

LABORATORY RESULTS AND DISCUSSION

Analyte concentrations in groundwater for the current sampling event are included in Figure 5 and in Table C, included below. Historical groundwater analytical results are summarized in Table 1. A copy of the laboratory report for the current event is included as Attachment 2.

Table C: Laboratory Analytical Results for May 23, 2005

WELL	TPHg ($\mu\text{g/L}$)	Benzene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Ethylben-zenes ($\mu\text{g/L}$)	Total Xylenes ($\mu\text{g/L}$)	MTBE ($\mu\text{g/L}$)	TBA ($\mu\text{g/L}$)	TAME ($\mu\text{g/L}$)	ETBE ($\mu\text{g/L}$)	Lead Scavengers ($\mu\text{g/L}$)	Other Analytes ($\mu\text{g/L}$)
MW4	1,900	5.9	ND<0.50	19	1.5	530	220	31	2.6	---	ND<1.0
MW5	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	---	ND<1.0
MW6	43,000	4,700	230	2,100	1,500	20,000	1100	280	91	ND<1.0-10	---
MW7											
MW8											
MW9											
MW10											
MW11	70	ND<0.50	ND<0.50	ND<0.50	ND<0.50	7.10	ND<20	ND<1.0	---	---	---
MW12	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	---	
MW13	420	3.5	ND<0.50	7.7	3.9	ND<1.0	ND<10	ND<1.0	ND<1.0	All ND<1.0	ND<1.0
MW14	210	ND<0.50	ND<0.50	3.9	4.3	2.1	ND<10	ND<1.0	ND<1.0	---	ND<1.0
MW15	3,300	9.7	1.0	81	58	ND<10	ND<15	ND<1.0	ND<1.0	---	ND<1.0
MW16	2,400	120	4.3	160	242	24	ND<10	ND<1.0	ND<1.0	---	ND<1.0
MW17	3,200	94.0	3	340	189	95	ND<60	3.7	ND<1.0	---	ND<1.0
MW18	5,600	28	5.2	160	194	ND<40	ND<20	1.7	ND<1.0	---	ND<1.0

The laboratory notes that samples collected from monitoring wells MW4, MW6, MW14, MW16, MW17, and MW18 include the reported gasoline components and additives in addition to other peaks in the gasoline range.

DISCUSSION

Laboratory results for groundwater samples analyzed from the monitoring wells are consistent with historical concentrations (Table 1). Monitoring wells MW9, MW12, and MW5 have had no

analyte detection since 2002, 2003, and 2004, respectively. Exceptions to this include monitoring wells MW16 through MW18, in which sampling began in August 2004, and do not have a sufficient set of data points. Analyte concentrations in monitoring well MW17 are relatively high compared to the previous monitoring events, possibly due to a higher water column.

RECOMMENDATIONS

- Continue with the current sampling protocol. The next sampling event is scheduled for August 2005.
- Remediation processes are pending approval from the Underground Storage Tank Clean-up Fund.

LIST OF FIGURES, TABLES, AND ATTACHMENTS

Figure 1: Location Map

Figure 2: Site Map

Figure 3: Hydraulic Gradient Map (Shallow Aquifer) for May 25, 2005

Figure 4: Hydraulic Gradient Map (Deep Aquifer) for May 25, 2005

Figure 5: Analyte Concentrations in Groundwater for May 25, 2005

Table 1: Quarterly Groundwater Analytical Results

Table 2: Historical Hydraulic Gradient Data

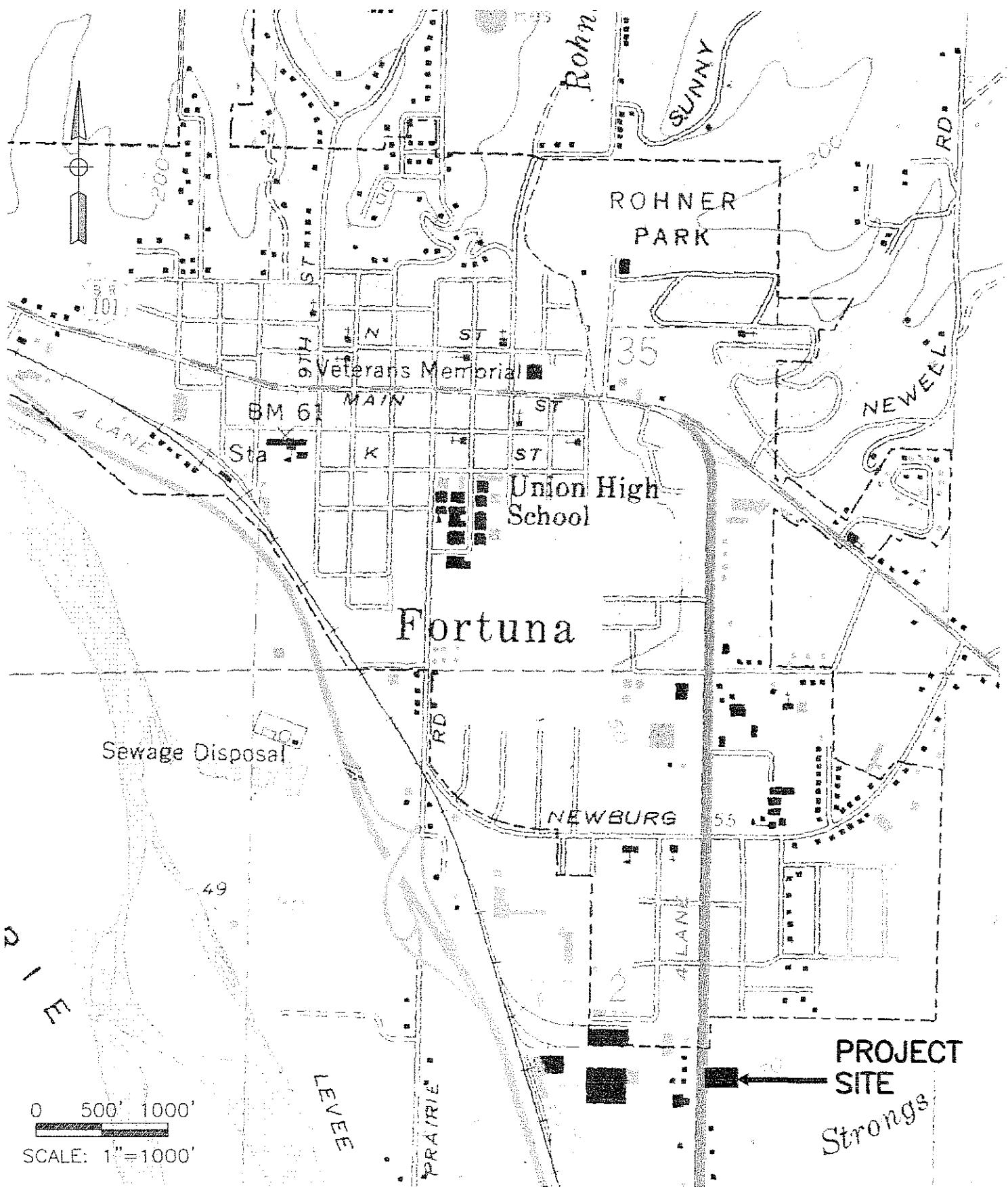
Attachment 1: Field Sampling Forms

Attachment 2: Copy of Current Laboratory Analytical Report

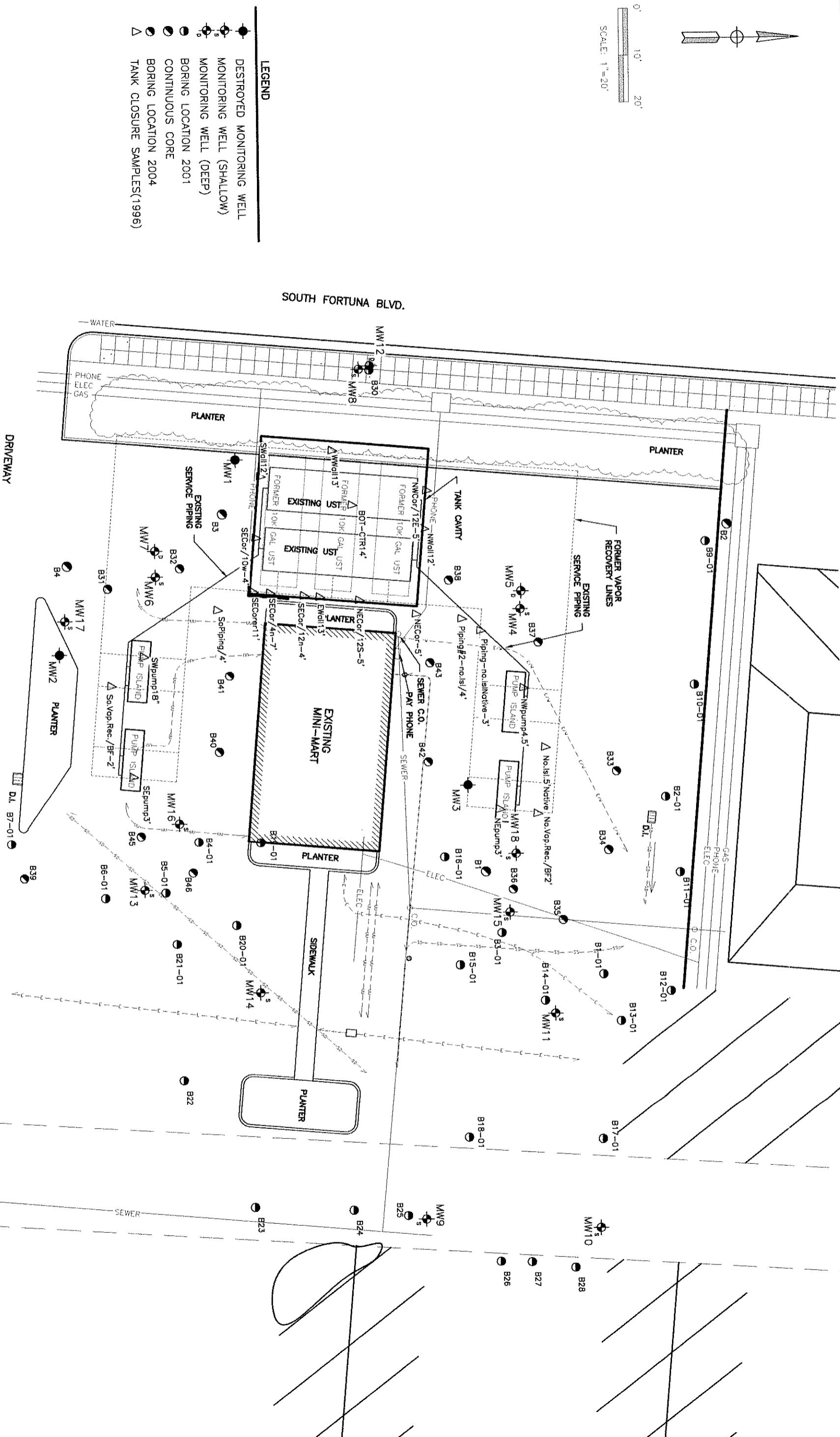


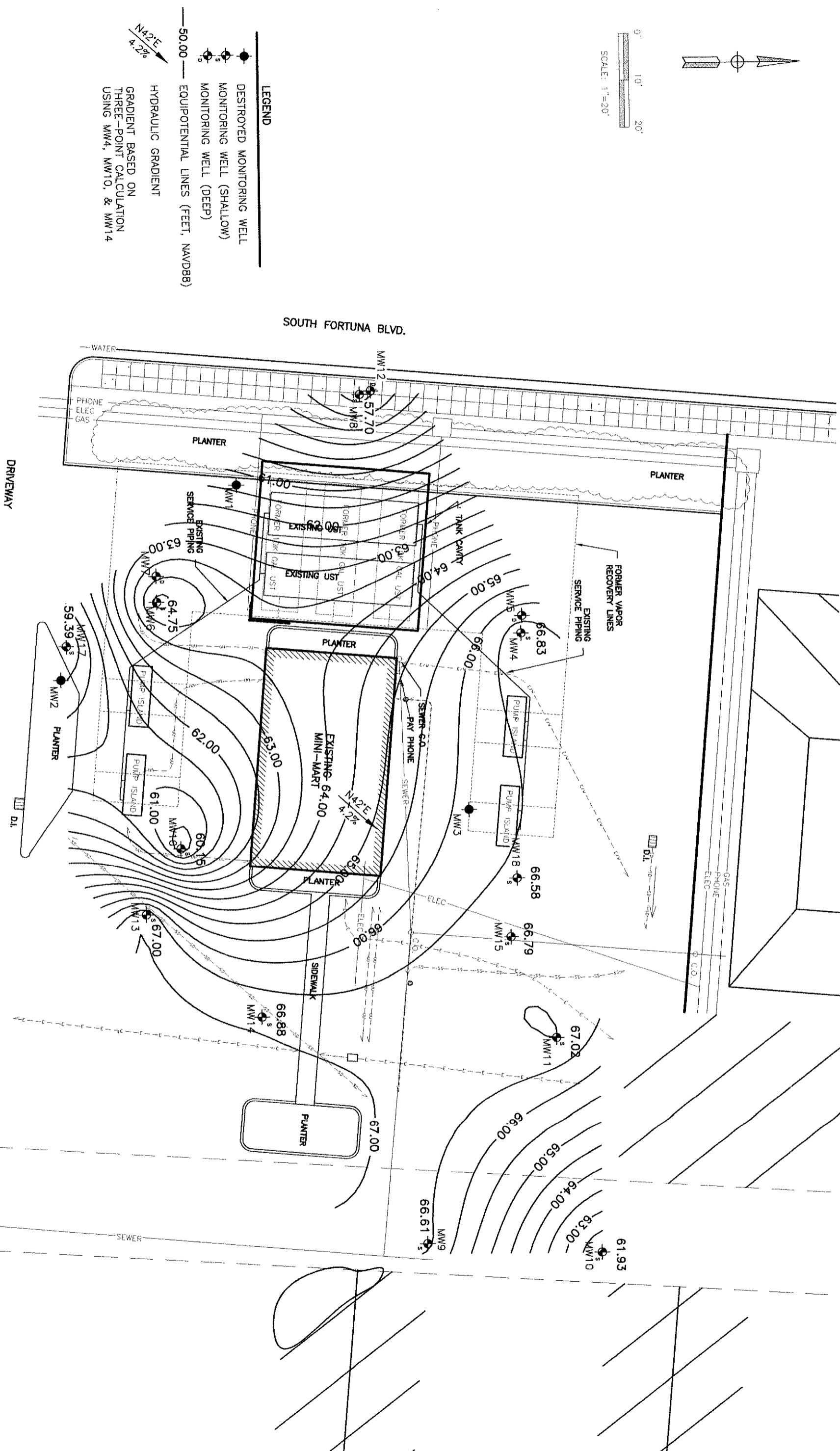
LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT	GROUNDWATER MONITORING REPORT	BY	RJM	FIGURE
CLIENT	HUMBOLDT PETROLEUM, INC.	DATE	4/12/05	1
LOCATION	R. VILLAGE TEXACO	CHECK		JOB NO.
LOCATION MAP		SCALE	1"=1000'	4329.02



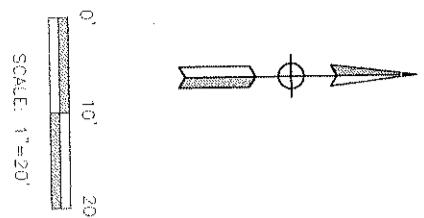
0 500' 1000'
SCALE: 1"=1000'





GROUNDWATER MONITORING
HYDRAULIC HEAD MAP - SHALLOW AQUIFER
HUMBOLDT PETROLEUM, INC.
R.VILLAGE TEXACO, FORTUNA

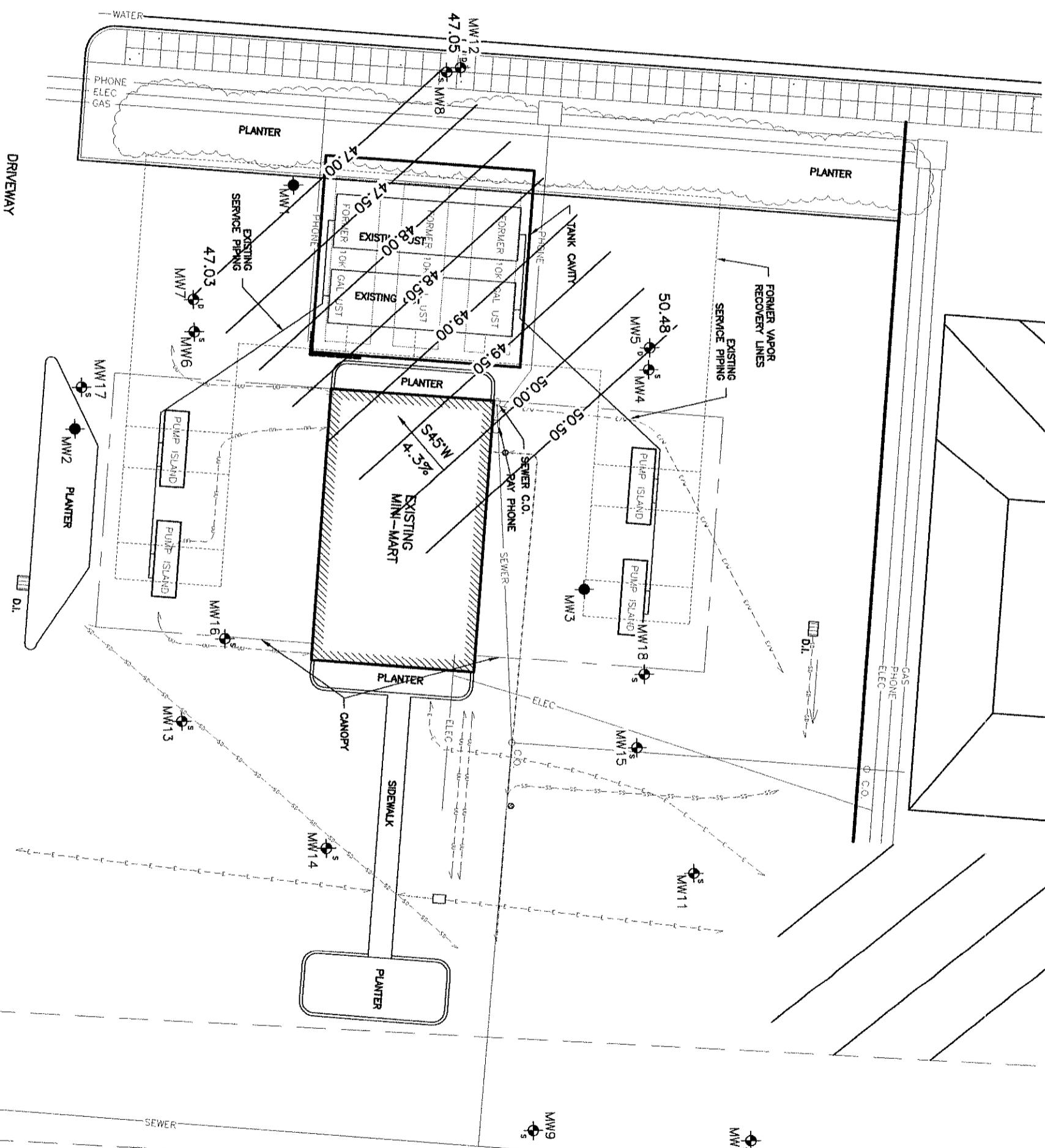
REPORT	
FER (5/23/05)	
C	
SCALE	1 = 20
DRAWN	RJB
CHECK	
APPROVED	
DATE	6/10/05
JOB NO.	43290
FIGURE	3



SCALE: 1" = 20'

~~S45W
4.5%~~
— 48.50 — EQUIPOTENTIAL LINES (FEET, NAVD88)
HYDRAULIC GRADIENT
GRADIENT BASED ON
THREE-POINT CALCULATION
USING MW5D, MW7D, & MW12D

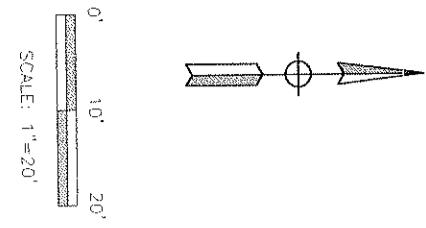
SOUTH FORTUNA BLVD.



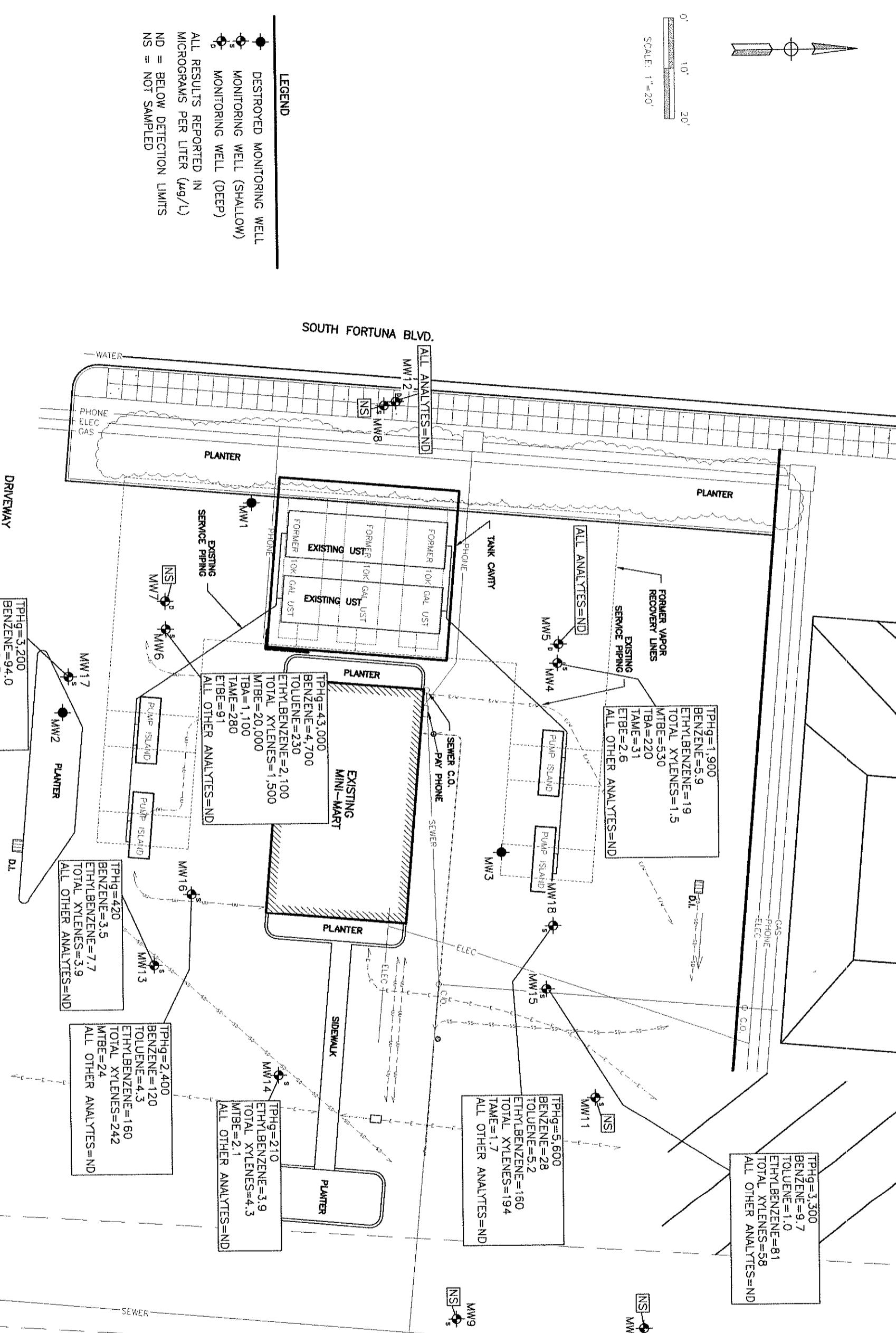
	LACO ASSOCIATES
21 W. 4TH ST. EUREKA, CA 95501 (707)443-5054	

GROUNDWATER MONITORING REPORT	
HYDRAULIC GRADIENT MAP - DEEP AQUIFER (5/23/05)	
NO.	REVISION
BY	CHK DATE
HUMBOLDT PETROLEUM, INC	
R. VILLAGE TEXACO, FORTUNA	

SCALE 1" = 20' DRAWN RJM CHECK CAPPED APPROVED DATE JOB NO. FIGURE
6/10/05 4329.02 4



SCALE: 1"=20'



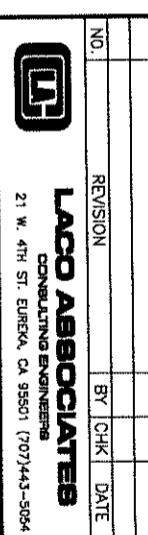
ELECTRIC/WATER (NORCAL GEO. CONSULTANTS INC.)

ELECTRIC (NORCAL GEO. CONSULTANTS INC.)

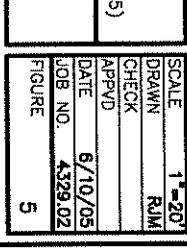
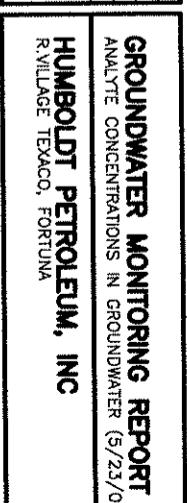
SANITARY SEWER (NORCAL GEO. CONSULTANTS INC.)

STORM DRAIN (NORCAL GEO. CONSULTANTS INC.)

UNDIFFERENTIATED UTILITY (NORCAL GEO. CONSULTANTS INC.)



21 W. 4TH ST. EUREKA, CA 95501 (707)443-5954



SCALE 1"=20'
DRAWN BY DATE
CHECKED APPROVED
DATE 6/10/05
JOB NO. 4329.02
FIGURE 5

TABLE 1: GROUNDWATER ANALYTICAL RESULTS

HPI R Village Texaco

723 South Fortuna Blvd, Fortuna

LACO No. 4329.02; LOP No. 12551

Groundwater Measurements										Analytical Results					
	Well Head Elevation	Hydraulic Head	Depth to Water (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Total MTBE (µg/L)	TBA (µg/L)	TAME (µg/L)	ETBE (µg/L)	Scavengers (µg/L)	Lead (µg/L)	Other Analytes (µg/L)
MW-1	12/21/1998	dry	no sample collected	---	---	---	---	---	---	---	---	---	---	---	---
	8/1/2000	dry	no sample collected	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	8/25/1999	dry	no sample collected	---	---	---	---	---	---	---	---	---	---	---	---
	8/1/2000	dry	no sample collected	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	8/25/1999	16.51	no sample collected	---	---	---	---	---	---	---	---	---	---	---	---
	8/1/2000	72.21	no sample collected	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	8/11/2000	NA	dry	no sample collected	---	---	---	---	---	---	---	---	---	---	---
	9/8/2000	63.12	9.09	---	---	---	---	---	---	---	---	---	---	---	---
	10/12/2000	64.03	8.18	---	---	---	---	---	---	---	---	---	---	---	---
	11/19/2000	64.64	7.57	510	61	ND<0.50	55	34	210	ND<10	ND<1.0	ND<1.0	All ND<1.0	ND<1.0	ND<1.0
	12/12/2000	64.16	8.05	---	---	---	---	---	---	---	---	---	---	---	---
	1/8/2001	64.81	7.40	---	---	---	---	---	---	---	---	---	---	---	---
	2/14/2001	66.56	5.65	2,800	88	ND<0.50	150	87.4	380	94	19	ND<1.0	---	All others ND	All others ND
	2/14/2001	field duplicate	2,500	81	ND<0.50	140	79.4	340	100	17	ND<1.0	---	All others ND	All others ND	All others ND
	2/14/2001	method blank	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	3/12/2001	66.79	5.42	---	---	---	---	---	---	---	---	---	---	---	---
	4/6/2001	66.52	5.69	---	---	---	---	---	---	---	---	---	---	---	---
	5/11/2001	66.41	5.80	1,300	120	ND<1	140	16	380	130	18	ND<1.0	All ND<2.5	All others ND	---
	6/8/2001	65.50	6.71	---	---	---	---	---	---	---	---	---	---	---	---
	7/16/2001	66.21	6.00	---	---	---	---	---	---	---	---	---	---	---	---
	8/24/2001	66.09	6.12	1,400	81	ND<1.3	78	40	650	290	36	3.4	All ND<2.5	All others ND	---
	9/17/2001	65.39	6.82	---	---	---	---	---	---	---	---	---	---	---	---
	10/24/2001	64.62	7.59	---	---	---	---	---	---	---	---	---	---	---	---
	11/5/2001	65.32	6.89	1,000	45	1.4	68	30.6	640	180	30	2.3	All ND<1.0	All others ND	---
	12/5/2001	66.48	5.73	---	---	---	---	---	---	---	---	---	---	---	---
	1/3/2002	67.13	5.08	---	---	---	---	---	---	---	---	---	---	---	---
	2/15/2002	66.63	5.58	1,700	8.5	ND<0.50	49	13	540	620	27	1.9	All ND<1.0	All others ND	---
	5/3/2002	66.63	5.58	1,900	7.4	ND<0.50	23	11.85	720	330	30	2.7	All ND<1.0	All others ND	---
	7/31/2002	66.26	5.95	1,700	21	0.77	72	36.2	650	230	32	2.6	All ND<1.0	All others ND	---
	12/5/2002	65.43	6.78	1,300	11	0.93	55	19.5	590	360	30	2.8	All ND<1.0	All others ND	---
	2/13/2003	62.68	9.53	no sample collected	---	---	---	---	---	---	---	---	---	---	---
	5/21/2003	66.91	5.30	2,200	20	ND<0.50	64	16	670	220	34	2.6	All ND<1.0	All others ND	---
	8/6/2003	66.40	5.81	2,700	12	1.1	80	18.8	810	280	38	3.0	All ND<1.0	All others ND	---
	11/6/2003	65.83	6.38	2,500	8.1	ND<0.50	44	8.88	620	200	28	2.2	All ND<1.0	All others ND	---
	2/11/2004	66.91	5.30	2,000	12	ND<0.50	25	7.0	680	390	39	ND<6.0	---	All others ND	---
	5/14/2004	66.30	5.91	1,900	20	ND<0.50	41	9.8	630	180	34	2.6	---	All others ND	---
	8/30/2004	66.15	6.06	1,800	7.5	ND<0.50	29	4.8	650	350	39	2.8	---	---	---
	11/22/2004	66.00	6.21	1,800	10	ND<0.50	39	5.7	690	ND<0.00	34	3.1	---	ND<1.0	---
	2/3/2005	66.94	5.27	2,000	6.9	ND<0.50	19	2.5	630	230	34	2.7	---	ND<1.0	---
	5/23/2005	66.83	5.38	1,900	5.9	ND<0.50	19	1.5	530	220	31	2.6	---	ND<1.0	---

TABLE 1: GROUNDWATER ANALYTICAL RESULTS

HPI R Village Texaco

723 South Fortuna Blvd, Fortuna

LACO No. 4329.02; LOP No. 12551

Groundwater Measurements

WELL/ Sample Date	Hydraulic Head (feet, NAVD-88)	Depth to Water (feet) NAVD-88)	Analytical Results									
			TIPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	TAME (µg/L)	ETBE (µg/L)	Scavengers (µg/L)
MW-5	72.32		50.46	21.86	no sample collected	---	---	---	---	---	---	---
8/11/2000	49.04	23.28	---	---	---	---	---	---	---	---	---	---
9/8/2000	48.40	23.92	---	---	no sample collected	---	---	---	---	---	---	---
10/12/2000	48.40	23.92	---	---	no sample collected	---	---	---	---	---	---	---
11/9/2000	48.40	23.92	---	---	no sample collected	---	---	---	---	---	---	---
12/12/2000	48.40	23.92	---	---	no sample collected	---	---	---	---	---	---	---
1/8/2001	48.40	23.92	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.71	ND<10	ND<1.0	ND<1.0	ND<1.0
2/14/2001	50.47	21.85	---	---	---	---	---	---	---	---	---	---
3/12/2001	50.53	21.79	---	---	---	---	---	---	---	---	---	---
4/6/2001	50.54	21.78	---	---	---	---	---	---	---	---	---	---
5/11/2001	50.50	21.82	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.2	ND<10	ND<1.0	ND<1.0	ND<1.0
6/8/2001	50.47	21.85	---	---	---	---	---	---	---	---	---	---
7/16/2001	48.90	23.42	---	---	no sample collected	---	---	---	---	---	---	---
8/24/2001	NA	dry	---	---	no sample collected	---	---	---	---	---	---	---
9/17/2001	NA	dry	---	---	no sample collected	---	---	---	---	---	---	---
10/24/2001	NA	dry	---	---	no sample collected	---	---	---	---	---	---	---
11/5/2001	48.82	23.50	---	---	no sample collected	---	---	---	---	---	---	---
12/5/2001	48.86	23.46	---	---	no sample collected	---	---	---	---	---	---	---
1/3/2002	48.90	23.42	---	---	no sample collected	---	---	---	---	---	---	---
2/15/2002	50.43	21.89	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<4.0	ND<20	ND<1.0	ND<1.0	All ND<1.0
5/3/2002	50.47	21.85	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<4.0	ND<20	ND<1.0	ND<1.0	All ND<1.0,2.0
7/31/2002	48.99	23.33	no sample collected	---	no sample collected	---	---	---	---	---	---	---
12/5/2002	48.63	23.69	no sample collected	---	no sample collected	---	---	---	---	---	---	---
2/13/2003	49.44	22.88	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<4.0	ND<20	ND<1.0	ND<1.0	All ND<1.0
5/21/2003	50.52	21.80	ND>50	2.9	ND<0.50	ND<0.50	ND<0.50	0.53	ND<4.0	ND<20	ND<1.0	All ND<1.0
8/6/2003	50.45	21.87	ND>50	ND<0.50	1.4	1.1	3.9	ND<4.0	ND<20	ND<1.0	ND<1.0	All ND<1.0
11/6/2003	48.84	23.48	57	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.74	ND<4.0	ND<20	ND<1.0	All ND<1.0
2/11/2004	50.49	21.83	52	3.1	ND<0.50	1.3	1.0	2.2	ND<10	ND<1.0	ND<1.0	All ND<1.0
5/14/2004	50.49	21.83	ND>50	5.9	ND<0.50	1.7	0.96	1.6	ND<16	ND<1.0	ND<1.0	All ND<1.0
8/30/2004	48.83	23.49	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<4.0	ND<20	ND<1.0	ND<1.0	All ND<1.0
11/22/2004	NA	dry	no sample collected	---	no sample collected	---	---	---	---	---	---	---
2/23/2005	50.45	21.87	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<4.0	ND<20	ND<1.0	ND<1.0	All ND<1.0
5/23/2005	50.48	21.84	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<4.0	ND<20	ND<1.0	ND<1.0	All ND<1.0
MW-6	72.24		---	---	no sample collected	---	---	---	---	---	---	---
8/11/2000	NA	dry	no sample collected	---	no sample collected	---	---	---	---	---	---	---
9/8/2000	NA	dry	no sample collected	---	no sample collected	---	---	---	---	---	---	---
10/12/2000	NA	dry	no sample collected	---	no sample collected	---	---	---	---	---	---	---
11/9/2000	NA	dry	no sample collected	---	no sample collected	---	---	---	---	---	---	---
12/12/2000	NA	dry	no sample collected	---	no sample collected	---	---	---	---	---	---	---
1/8/2001	NA	dry	no sample collected	---	no sample collected	---	---	---	---	---	---	---
2/14/2001	62.89	9.35	no sample collected	---	no sample collected	---	---	---	---	---	---	---
3/12/2001	63.62	8.62	---	---	---	---	---	---	---	---	---	---
4/6/2001	63.65	8.59	---	---	---	---	---	---	---	---	---	---
5/11/2001	63.71	8.53	50,000	6,400	1,100	1,400	4,160	25,000	1,600	100	290	All ND<50
6/8/2001	63.43	8.81	---	---	---	---	---	---	---	---	---	---
7/16/2001	63.74	8.50	---	---	---	---	---	---	---	---	---	---
8/24/2001	63.00	9.24	no sample collected	---	no sample collected	---	---	---	---	---	---	---

TABLE 1: GROUNDWATER ANALYTICAL RESULTS

HPIR Village Texaco

723 South Fortuna Blvd, Earthqua

ACO No 4339 03: 10P Ns 10551

Ergonomics; 49(2):172-173, 2006.

Conductor Momentum

TABLE 1: GROUNDWATER ANALYTICAL RESULTS

IUPI R Village Texaco

723 South Fortuna Blvd, Fortuna

LACO No. 4329.02; LOP No. 12551

11

TABLE 1: GROUNDWATER ANALYTICAL RESULTS

HPI R Village Texaco

723 South Fortuna Blvd, Fortuna

LACO No. 4329.02; LOP No. 12551

WELL/ Sample Date	Well Head Elevation (feet, NAVD-88)	Hydraulic Head (feet) NAVD-88)	Depth to Water (feet)	Groundwater Measurements							Analytical Results						
				TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Total TBA (µg/L)	TAME (µg/L)	ETBE (µg/L)	L-lead Scavengers (µg/L)	Other Analytes (µg/L)			
MW-9	71.60	59.83	11.77	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	3.1	ND<10	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0		
7/31/2002	62.14	9.46	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
12/5/2002	62.18	9.42	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	—	ND<20	ND<1.0	ND<1.0	All ND<1.0	—	ND<1.0		
2/13/2003	61.82	9.78	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
5/21/2003	NA	dry	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
8/6/2003	NA	dry	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
11/6/2003	NA	dry	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
2/11/2004	61.70	9.90	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
5/14/2004	61.69	9.91	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
8/30/2004	61.71	9.89	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
11/22/2004	61.71	9.89	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
2/3/2005	66.61	4.99	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
MW-10	71.35	9.07	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	—	—	ND<10	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0		
7/31/2002	61.94	9.41	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
12/5/2002	62.33	9.02	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
2/13/2003	62.51	8.84	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
5/21/2003	62.27	9.08	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
8/6/2003	61.69	9.66	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
11/6/2003	63.37	7.98	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
2/11/2004	62.29	9.06	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
5/14/2004	61.97	9.38	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
8/30/2004	61.73	9.62	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
11/22/2004	64.00	7.35	ND<50	4.2	ND<0.50	1.8	0.81	1.3	ND<10	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
2/3/2005	61.93	9.42	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
5/23/2005	67.02	4.80	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
MW-11	71.82	8.96	420	190	ND<0.50	0.67	12.5	32	ND<10	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
7/31/2002	62.49	9.33	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
12/5/2002	63.06	8.76	120	15	ND<0.50	1.1	1.1	41	ND<60	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
2/13/2003	63.27	8.55	79	5.5	ND<0.50	ND<0.50	ND<0.50	26	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
5/21/2003	62.86	8.96	73	8.3	ND<0.50	0.58	0.70	30	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
8/6/2003	62.41	9.41	120	1.8	ND<0.50	ND<0.50	ND<0.50	24	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
11/6/2003	62.21	9.61	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
2/11/2004	62.31	9.51	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
5/14/2004	62.31	9.51	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
8/30/2004	62.32	9.50	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
11/22/2004	62.22	9.60	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
2/3/2005	67.02	70	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
MW-12	72.44	29.23	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<10	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
7/31/2002	43.21	29.94	no sample collected	—	—	—	—	—	—	—	—	—	—	—	—		
12/5/2002	42.50	26.20	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
2/13/2003	46.24	24.68	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
5/21/2003	47.76	28.37	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
8/6/2003	44.07	65	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			
11/6/2003	43.01	29.43	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<20	ND<1.0	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0			

TABLE I: GROUNDWATER ANALYTICAL RESULTS

HPJ R Village Texaco

723 South Fortuna Blvd, Fortuna

LACO No. 4329.02; LOP No. 12551

	Groundwater Measurements						Analytical Results						
	Well Head Elevation (feet)	Hydraulic Head (feet)	Depth to Water (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	TAME (µg/L)	ETBE (µg/L)	Lead Scavengers (µg/L)
MW-12 Continued													
2/11/2004	46.69	25.75	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0
5/14/2004	45.76	26.68	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0
8/30/2004	43.20	29.24	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0
11/22/2004	43.58	28.86	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0
2/3/2005	46.01	26.43	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0
5/23/2005	47.05	25.39	ND>50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-13	71.84												
7/31/2002	63.00	8.84	5,700	360	890	140	1,970	13	ND<10	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0
12/5/2002	62.67	9.17	no sample collected	—	—	—	—	—	—	—	—	—	—
2/13/2003	62.67	9.17	6,700	580	50	530	1,476	ND>20	ND>80	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0
5/21/2003	62.26	9.58	no sample collected	—	—	—	—	—	—	—	—	—	—
8/6/2003	62.23	9.61	no sample collected	—	—	—	—	—	—	—	—	—	—
11/6/2003	62.24	9.60	no sample collected	—	—	—	—	—	—	—	—	—	—
2/11/2004	62.21	9.63	no sample collected	—	—	—	—	—	—	—	—	—	—
5/14/2004	62.24	9.60	no sample collected	—	—	—	—	—	—	—	—	—	—
8/30/2004	62.23	9.61	no sample collected	—	—	—	—	—	—	—	—	—	—
11/22/2004	62.25	9.59	no sample collected	—	—	—	—	—	—	—	—	—	—
2/3/2005	NA	dry	no sample collected	—	—	—	—	—	—	—	—	—	—
5/23/2005	67.00	4.84	420	3.5	ND<0.50	7.7	3.9	ND<1.0	ND<10	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0
MW-14	72.06												
7/31/2002	63.58	8.48	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<10	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0
12/5/2002	62.73	9.33	no sample collected	—	—	—	—	—	—	—	—	—	—
2/13/2003	63.01	9.05	580	83	7.9	28	36.4	8.2	ND>20	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0
5/21/2003	62.45	9.61	no sample collected	—	—	—	—	—	—	—	—	—	—
8/6/2003	62.35	9.71	no sample collected	—	—	—	—	—	—	—	—	—	—
11/6/2003	62.35	9.71	no sample collected	—	—	—	—	—	—	—	—	—	—
2/11/2004	NA	dry	no sample collected	—	—	—	—	—	—	—	—	—	—
5/14/2004	63.04	9.02	64	ND<0.50	ND<0.50	0.68	ND<0.50	5.0	ND<10	ND<1.0	—	—	ND<1.0
8/30/2004	62.73	9.33	54	ND<0.50	ND<0.50	—	ND<0.50	4.6	ND<25	ND<1.0	—	—	ND<1.0
11/22/2004	NA	dry	no sample collected	—	—	—	—	—	—	—	—	—	—
2/3/2005	62.44	9.62	no sample collected	—	—	—	—	—	—	—	—	—	—
5/23/2005	66.88	5.18	210	ND<0.50	ND<0.50	3.9	4.3	2.1	ND<10	ND<1.0	—	—	ND<1.0
MW-15	72.21												
7/31/2002	63.16	9.05	9,900	1,100	1,300	310	1,710	45	ND<20	1.8	ND<1.0	ND<1.0	All others ND
12/5/2002	62.82	9.39	no sample collected	—	—	—	—	—	—	—	—	—	—
2/13/2003	66.66	5.55	8,000	270	4.7	850	791	24	ND<50	1.1	ND<1.0	All ND<1.0	ND<1.0
5/21/2003	66.67	5.54	6,800	100	4.1	480	257	14	ND>20	ND<1.0	All ND<1.0	All ND<1.0	ND<1.0
8/6/2003	64.12	8.09	5,500	310	8.9	640	465	20	ND<20	1.1	ND<1.0	All ND<1.0	ND<1.0
11/6/2003	63.05	9.16	4,700	200	5.1	330	205	24	ND<20	1.2	ND<1.0	All ND<1.0	ND<1.0
2/11/2004	67.07	5.14	3,800	40	1.7	200	106	16	ND<30	ND<1.0	ND<1.0	—	ND<1.0
5/14/2004	66.26	5.95	6,000	50	2.2	450	143	13	ND<10	1.2	ND<1.0	—	ND<1.0
8/30/2004	63.19	9.02	4,000	39	2.0	240	89	19	ND<25	1.2	ND<1.0	—	ND<1.0
11/22/2004	65.39	6.82	3,700	54	2.7	340	210	20	ND<70	1.2	ND<1.0	—	ND<1.0
2/3/2005	67.05	5.16	3,100	16	1.4	160	71	13	ND<20	ND<1.0	ND<1.0	—	ND<1.0
5/23/2005	66.79	5.42	3,300	9.7	1.0	81	58	58	ND<10	ND<15	ND<1.0	ND<1.0	ND<1.0

TABLE 1: GROUNDWATER ANALYTICAL RESULTS

HPI R Village Texaco

723 South Fortuna Blvd, Fortuna

LACO No. 4329.02; LOP No. 12551

WELL/ Sample Date	Elevation (feet, NAVD-88)	Well Head Hydraulic Head (feet, NAVD-88)	Groundwater Measurements				Analytical Results							
			Total Water (feet) (feet)	TPHg ($\mu\text{g/L}$)	Benzene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Ethylbenzene ($\mu\text{g/L}$)	Xylenes ($\mu\text{g/L}$)	MTBE ($\mu\text{g/L}$)	TBA ($\mu\text{g/L}$)	TAME ($\mu\text{g/L}$)	ETBE ($\mu\text{g/L}$)	Scavengers ($\mu\text{g/L}$)	Other Analytes ($\mu\text{g/L}$)
MW-16	71.74													
8/30/2004	58.41	13.33	3,200	26	85	16	323	36	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
11/22/2004	58.02	13.72	9,800	2,000	1,400	180	1,080	280	53	4.2	ND<1.0	ND<1.0	ND<1.0	ND<1.0
2/3/2005	61.22	10.52	4,300	180	22	300	980	72	ND<35	2.6	ND<1.0	ND<1.0	ND<1.0	ND<1.0
5/23/2005	60.15	11.59	2,400	120	4.3	160	242	24	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-17	71.50													
8/30/2004	57.82	13.68	no sample collected	—	—	—	—	—	—	—	—	—	—	—
11/22/2004	57.56	13.94	no sample collected	—	—	—	—	—	—	—	—	—	—	—
2/3/2005	59.78	11.72	260	1.4	ND<0.50	3.3	8.0	190	83	7.3	ND<1.0	ND<1.0	ND<1.0	ND<1.0
5/23/2005	59.39	12.11	3,200	94.0	3	340.0	189.0	95	ND<60	3.7	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-18	71.83													
8/30/2004	58.26	13.57	580	6.3	14	4.4	95	17	ND<10	1.6	ND<1.0	ND<1.0	ND<1.0	ND<1.0
11/22/2004	57.99	13.84	7,400	2,000	460	200	890	190	85	13	ND<1.0	ND<1.0	ND<1.0	ND<1.0
2/3/2005	59.81	12.02	2,400	220	27	72	560	23	ND<10	2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0
5/23/2005	66.58	5.25	5,600	28	5.2	160	194	ND<40	ND<20	1.7	ND<1.0	ND<1.0	ND<1.0	ND<1.0

Notes:

TPHg - total petroleum hydrocarbons as gasoline

Xylenes - total of m,p-xylenes and o-xylenes

Fuel oxygenates include:

MTBE - methyl tertiary butyl ether

ETBE - ethyl tertiary butyl ether

TAME - tertiary amyl methyl ether

TBA - tertiary butyl alcohol

DIPE - Di-isopropyl ether

All results reported in micrograms per liter ($\mu\text{g/L}$)ND - non-detect at the reporting limit shown ($\mu\text{g/L}$)

Bold results indicate analyte detection

— Not sampled

TABLE 2: HISTORIC HYDRAULIC GRADIENT DATA

HPI R Village Texaco

723 South Fortuna Blvd, Fortuna

LACO No. 4329.02; LOP No. 12551

Date	Shallow Aquifer		Deep Aquifer	
	Direction	Slope	Direction	Slope
11/9/2000	NA	NA	NA	NA
12/12/2000	NA	NA	NA	NA
12/5/2002	S72°E	3.70%	NA	NA
2/13/2003	S82°W	0.061	S50°W	0.055
5/21/2003	S43°E	4.60%	S49°W	4.80%
8/6/2003	S43°W	0.044	NA	NA
11/6/2003	S70°E	3.48%	NA	NA
2/11/2004	S42°E	0.046	S49°W	0.066
5/14/2004	S38°E	4.20%	S57°W	8.20%
8/30/2004	NA	NA	NA	NA
11/22/2004	S61°E	NA	NA	NA
2/3/2005	NA	NA	S50°W	7.7%
5/23/2005	S42°E	4.20%	S45°W	4.30%